

Listing of Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An access point providing a wireless local area network operable to connect a terminal device to a wide area network, the access point comprising:

(a) an information processing unit operable to process a digital signal based on a communication protocol for communicating via the wireless local area network;

(b) a sending antenna case that includes: (i) a sending antenna and [[a]] (ii) a sending signal conversion unit, without a function for receiving a radio frequency signal from the terminal device, wherein the sending signal conversion unit is operable to convert a digital signal from the information processing unit to a radio frequency signal for the wireless local area network, and the sending antenna is operable to send the converted radio frequency signal to the terminal device;

(c) a plurality of receiving antenna cases spaced apart from the sending antenna case in a service area around the sending antenna case, wherein each one of the plurality of receiving antenna cases includes: (iii) a receiving antenna and (iv) a receiving signal conversion unit, without a function for sending a radio frequency signal to the terminal device, wherein each one of the receiving antennas is operable to receive a radio frequency signal from the terminal device when the terminal device is located between the sending antenna case and the receiving antenna case, and wherein the receiving signal conversion unit is operable to convert the radio frequency signal received from the terminal device to a digital signal for the information processing unit;

(d) a main unit case that is separated from the sending antenna case and the plurality of receiving antenna cases, and includes the information processing unit and a receiving synthesis unit, wherein the receiving synthesis unit is operable to perform diversity receiving with respect to the received radio frequency signals from the plurality of receiving antennas;

(e) a sending wire cable that connects the main unit case to the sending antenna case operable to transmit the digital signal from the information processing unit to the sending signal conversion unit; and

(f) a plurality of receiving wire cables operable to transmit the digital signal from the plurality of receiving signal conversion units to the receiving synthesis unit, wherein each one

of the plurality of receiving wire cables connects a respective one of the plurality of receiving antenna cases to the main unit case.

2. (Original) An access point according to claim 1, wherein the signal conversion unit comprises:

a frequency conversion unit that performs conversion between the radio frequency signal and an intermediate frequency signal having lower frequency than the radio frequency signal;

a modem unit that performs modulation and/or demodulation between the intermediate frequency signal and a base band signal; and

a base band unit that performs conversion between the base band signal and the digital signal.

3. (Previously Presented) An access point according to claim 1, wherein the transmission of the digital signal by the wired cable is either one of serial transmission and parallel transmission.

4. (Previously Presented) An access point according to claim 1, wherein the wired cable, in addition to transmission of the digital signal, performs at least one of transmission of a control signal and power supply, for at least one of the antenna unit and the signal conversion unit.

5. (Previously Presented) An access point according to claim 1, wherein the wired cable is coaxial cable.

6. (Currently Amended) A method for exchanging signals at an access point operable to provide a wireless local area network connection to a terminal device, for connecting the terminal device to a wide area network, the method comprising:

disposing an information processing unit in a main unit case, wherein the information processing unit is operable to process a digital signal based on a communication protocol used by the wireless local area network;

disposing a sending antenna case that includes a sending antenna and a sending signal conversion unit, without a function for receiving a radio frequency signal from the terminal device, wherein the sending signal conversion unit is operable to convert a digital signal from

the information processing unit to a radio frequency signal for the wireless local area network, and the sending antenna is operable to send the converted radio frequency signal to the terminal device;

(c) disposing a plurality of receiving antenna cases spaced apart from the sending antenna case in a service area around the sending antenna case, wherein each one of the plurality of receiving antenna cases includes: (i) a receiving antenna and (ii) a receiving signal conversion unit, without a function for sending a radio frequency signal to the terminal device, wherein each one of the receiving antennas is operable to receive a radio frequency signal from the terminal device when the terminal device is located between the sending antenna case and the receiving antenna case; and wherein the receiving signal conversion unit is operable to convert the radio frequency signal received from the terminal device to a digital signal for the information processing unit;

(d) disposing a main unit case that is separated from the sending antenna case and the plurality of receiving antenna cases, and includes the information processing unit and a receiving synthesis unit, wherein the receiving synthesis unit is operable to perform diversity receiving with respect to the received radio frequency signals from the plurality of receiving antennas;

connecting the main unit case and the sending antenna case via a sending wired cable, connecting the main unit and each of the plurality of receiving antenna cases via a plurality of receiving wired cables, wherein a receiving synthesis unit in the main unit case is connected to each one of the plurality of receiving antennas by [[the]] a respective separate receiving wired cable; and

transmitting the digital signal according to the protocol of the local area network via the wired cable.

7. (Currently Amended) An access point operable to effectively provide a wireless local network operable to connect a terminal device to a wide area network, the access point comprising:

a main unit case that includes an information processing unit operable to process a digital signal based on a communication protocol for communicating with the terminal device;

a sending antenna case separated from the main unit case, wherein the [[main]] sending antenna unit case, without a function for receiving a radio frequency signal from the terminal device, the sending antenna unit case includes a sending signal conversion unit and a

sending antenna unit, wherein the sending signal conversion unit is operable to convert the digital signal from the information processing unit into a converted radio frequency signal for exchanging information via the wireless local area network, and wherein the sending antenna unit is operable to send the converted radio frequency to the terminal device;

a plurality of receiving antenna cases spaced apart from the sending antenna case in a service area around the sending antenna case and separated from the main unit case, wherein each of the plurality of receiving antenna cases is without a function for sending a radio frequency signal to the terminal device and each receiving antenna case includes a receiving antenna unit and a receiving conversion unit, wherein the receiving antenna unit operable to receive a radio frequency signal from the terminal device, and wherein the receiving conversion unit operable to convert the radio frequency signal received by the receiving antenna unit into a digital signal for transmitting to the information processing unit;

a sending wired cable that connects the main unit case to the sending antenna case to transmit the digital signal from the information processing unit to the sending signal conversion unit;

a plurality of receiving wired cables operable to transmit: (a) the digital signal from the main unit case to the sending antenna case, and (b) the digital signal from each one of the plurality of receiving antenna cases the receiving antenna case to the main unit case wherein each one of the plurality of receiving wire cables connects one of the plurality of the receiving antenna cases to the main unit case; and

wherein the information processing unit includes a receiving synthesis unit that performs diversity receiving with respect to the radio frequency signal received at the plurality of receiving antenna cases.